

What is claimed is:

1. A method for determining a substrate type comprising:  
disposing said substrate in a plasma processing system;  
exposing said substrate to a process in said plasma processing system;  
detecting an optical signal from said process; and  
determining said substrate type by comparing said optical signal with a threshold value.
2. The method of claim 1, wherein said exposing said substrate to said process comprises exposing said substrate to a seasoning process.
3. The method of claim 1, wherein said detecting said optical signal comprises using optical emission spectroscopy (OES).
4. The method of claim 3, wherein said using optical emission spectroscopy comprises acquiring an optical emission spectrum.
5. The method of claim 4, wherein said detecting said optical signal comprises determining an intensity ratio from said optical emission spectrum.
6. The method of claim 5, wherein said comparing said optical signal with said threshold value comprises comparing said intensity ratio with said threshold value.
7. The method of claim 6, wherein said determining said substrate type comprises determining a correct substrate type when said intensity ratio has a value less than said threshold value, and determining an incorrect substrate type when said intensity ratio has a value greater than said threshold value.
8. The method of claim 6, wherein said determining said substrate type comprises identifying a seasoning substrate when said intensity ratio has a

value less than said threshold value, and identifying a bare silicon substrate when said intensity ratio has a value greater than said threshold value.

9. The method of claim 7, wherein said comparing said optical signal with said threshold value comprises setting said threshold value to an average of an intensity ratio corresponding to said incorrect substrate type and an intensity ratio corresponding to said correct substrate type.

10. The method of claim 1, wherein said comparing said optical signal with said threshold value comprises comparing said optical signal with at least one of a static threshold value, and a dynamic threshold value.

11. A system for determining a substrate type comprising:  
a diagnostic system configured to be coupled with a plasma processing system, and configured to provide an optical signal from a process performed on a substrate in said plasma processing system; and  
a controller coupled to said diagnostic system and configured to determine a type of said substrate by comparing said optical signal to a threshold value.

12. The system of claim 11, wherein said diagnostic system is configured to provide an optical signal from a seasoning process.

13. The system of claim 11, wherein said diagnostic system comprises an optical emission spectroscopy (OES) system.

14. The system of claim 13, wherein said optical emission spectroscopy system is configured to provide an optical emission spectrum from said process.

15. The system of claim 14, wherein said controller is configured to determine an intensity ratio from said optical emission spectrum.

16. The system of claim 15, wherein said controller compares said optical signal with said threshold value by comparing said intensity ratio with said threshold value.

17. The system of claim 16, wherein said controller determines said substrate type by determining a correct substrate type when said intensity ratio has a value less than said threshold value, and determining an incorrect substrate type when said intensity ratio has a value greater than said threshold value.

18. The system of claim 16, wherein said controller determines said substrate type by determining a seasoning substrate when said intensity ratio has a value less than said threshold value, and determining a bare silicon substrate when said intensity ratio has a value greater than said threshold value.

19. The system of claim 17, wherein said controller determines said substrate type by comparing to a threshold value comprising a value equal to an average of an intensity ratio corresponding to said incorrect substrate type and an intensity ratio corresponding to said correct substrate type.

20. The system of claim 11, wherein said controller determines said substrate type by comparing to a threshold value comprising at least one of a static threshold value, and a dynamic threshold value.

21. A method for determining a substrate type comprising:  
disposing said substrate in a plasma processing system;  
exposing said substrate to a seasoning process in said plasma processing system;  
detecting an optical signal from said process using optical emission spectroscopy, wherein said optical signal comprises an intensity ratio of a first intensity corresponding to a first wavelength band to a second intensity corresponding to a second wavelength band; and

determining said substrate type by comparing said optical signal with a threshold value, wherein said threshold value is set to an average value between an intensity ratio for a correct substrate type and an intensity ratio for an incorrect substrate type.

22. The method of claim 1, wherein said exposing said substrate to said process comprises exposing said substrate to a production process.